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PATENT
Docket No. 110.0110 0101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): PETER J. SCHILLER) Group Art Unit: 2873
Serial No.: 10/019,521)
Confirmation No.: 2112) Examiner: JESSICA STULTZ
Filed: June 6, 2002)
For: MICRO-ELECTROMECHANICAL DEVICES AND METHODS OF
MANUFACTURE

RESPONSE

Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Office Action mailed October 30, 2003 has been received and reviewed. Claims 1-27 remain pending in the present application. Reconsideration and withdrawal of the rejections are respectfully requested.

Applicants note that claims 10, 21, and 22 have been indicated as allowable (although objected to as dependent upon a rejected base claim). Applicants provide the following comments with respect to the remainder of the claims.

The 35 U.S.C. §102 Rejection

Claims 1-3, 5-6, 8-9, 11, 15-16, 18-20, 23, and 26-27 were rejected under 35 U.S.C. §102(b) as being anticipated by Mastrangelo (U.S. Patent No. 5,443,469). Applicants respectfully traverse this rejection and the assertions made in support thereof.

Independent method claim 1 recites "providing sacrificial material on a selected area of the first side of the substrate." Independent article claim 15 recites "sacrificial material on the

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first side of the substrate in a plurality of selected areas." In other words, the sacrificial material is provided on (claim 1) or located on (claim 15) the first side of the substrate.

In contrast, Mastrangelo teaches doping the substrate itself, such that a doped area is located within the substrate (see, e.g., Mastrangelo, Fig. 4A). As such, Mastrangelo does not anticipate the method recited in claim 1 or the article recited in claim 15.

With respect to independent article claim 23, Applicants note that the article includes "a diaphragm layer . . . wherein a portion of the diaphragm layer is suspended directly above a portion of the substrate surrounding the opening of the void; wherein the suspended portion of the diaphragm layer and the substrate form an included angle at their junction of less than 90 degrees."

It is asserted in the Office Action that Mastrangelo discloses that "a portion of the diaphragm layer and the substrate form an included angle at their junction of less than 90 degrees (Shown in Figures 1 and 4I-4O)." Applicants respectfully disagree.

Mastrangelo does not depict a separate diaphragm layer located on the surface of a substrate. As a result, the figures relied upon to support this rejection cannot depict any particular angular relationship between the diaphragm layer and the substrate.

If this rejection is based on inherency, Applicants must respectfully object, noting that the standards for inherent anticipation require that the result must be necessarily present in the cited reference. The mere possibility of inherent anticipation is not sufficient.

The above comments with respect to claim 23 also apply to dependent article claim 16 which recites that "the diaphragm layer and the substrate form an included angle at edges of the sacrificial material in the selected areas of less than 90 degrees."

For the above reasons, Applicants respectfully submit that claims 1-3, 5-6, 8-9, 11, 15-16, 18-20, 23, and 26-27 are patentable over Mastrangelo. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

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The 35 U.S.C. §103 Rejection

Claims 4, 7, 12-14, 17, and 24-25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mastrangelo (U.S. Patent No. 5,443,469), in view of Ishida et al. (U.S. Patent No. 5,725,785). Applicants respectfully traverse this rejection and the assertions made in support thereof.

At the outset, Applicants note that all of the claims subject to this obviousness rejection are dependent from one of the independent claims rejected as anticipated by Mastrangelo. As discussed above, Mastrangelo does not support that anticipation rejection. Nor does Ishida et al. serve to address the deficiencies of that rejection. For that reason alone, Applicants respectfully submit that claims 4, 7, 12-14, 17, and 24-25 are patentable over the combination of Mastrangelo in view of Ishida et al.

With respect to method claim 4, Applicants note that Ishida teaches that any metallic contacts on the front side of the disclosed devices should be exposed after the proof mass is formed, not before as asserted in support of the rejection of claim 4 ("... the wiring pattern 12 and the bonding pads 13 should be formed after the gauge forming process." Ishida et al., col. 10, lines 54-56). This is in direct contrast to the method recited in claim 4.

With respect to claims 14 and 25, Applicants note that the claims recite that "the suspended portion of the diaphragm layer and the proof mass form an included angle at their junction of less than 90 degrees." Mastrangelo, relied on in support of the rejection of claims 14 and 25 does not disclose any proof mass. Nor, as discussed above with respect to claim 23, does Mastrangelo disclose a diaphragm layer separate from the substrate. As a result, any assertions made regarding the features recited in claims 14 and 25 are not supported by the disclosure of Mastrangelo.

For the above reasons, Applicants respectfully submit that claims 4, 7, 12-14, 17, and 24-25 are patentable over the combination of Mastrangelo in view of Ishida et al. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

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Summary

It is respectfully submitted that the pending claims 1-27 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicant's Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
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29 JANUARY 2004

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CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this

29th day of January, 2004, at 2:50 pm (Central Time).

By: Sandra J. Truehart
Name: Sandra J. Truehart